

Claims

1. A servo valve for actuating a pressure booster (2) which is assigned to a fuel injector (9), the pressure booster (2) having a work chamber (4) which is separated by a booster piston (3, 50) from a differential pressure chamber (5), and the pressure change in the differential pressure chamber (5) of the pressure booster (2) is effected via the servo valve (23), to which a switching valve (24) activating it is assigned, characterized in that in a valve housing (47; 61, 62, 63) of the servo valve (23), its control chamber (29) can both be made to communicate with a high-pressure source (1) and pressure-relieved into a low-pressure-side return (25), and for generating a fast closing motion at the valve piston (32; 33, 60), a pressure shoulder (44, 28) acting in the closing direction of the valve piston (32, 33, 60) is embodied between the control chamber (29) and the hydraulic chamber (42), and control edges (36, 40) without a common opening phase are embodied on the valve piston (32, 33, 60).

2. The servo valve according to claim 1, characterized in that the valve piston has both a first valve piston part (32) and a reduced-diameter second valve piston part (33).

3. The servo valve according to claim 2, characterized in that an overlapping length (37) that forms a slide seal (36) is embodied on the reduced-diameter valve piston part (32).

4. The servo valve according to claim 2, characterized in that one or more flow conduits (41) are embodied on the reduced-diameter valve piston part (33) of the valve piston (32, 33, 60).

5. The servo valve according to claim 2, characterized in that the dividing point between the first valve piston part (32) and the reduced-diameter second valve piston part (33) is

located in a low-pressure-side chamber (34), and face ends (28, 44) of the valve piston parts (32, 33) are acted upon by high pressure.

6. The servo valve according to claim 1, characterized in that a guide portion in the servo valve housing (47) that originates at the control chamber (29) discharges into a second hydraulic chamber (29, 38) acted upon by high pressure.

7. The servo valve according to claim 6, characterized in that the guide portion of the first valve piston part (32) is embodied without valve pockets in the servo valve housing (47).

8. The servo valve according to claim 6, characterized in that a further seal (64) is embodied on the valve piston (60) and cooperates with a housing part (62) of a multi-part valve housing (61).

9. The servo valve according to claim 8, characterized in that the further seal (64) is embodied as a flat seat.

10. The servo valve according to claim 6, characterized in that integrated flow conduits (41) that enable an outflow of fuel are embodied on the valve piston (60) above an overlapping length (37) with a second housing part (63) of the multi-part housing (61).

11. The servo valve according to claim 1, characterized in that a pressure face (44) that is operative in the opening direction of the servo valve piston (32, 33) is acted upon by the pressure prevailing in the differential pressure chamber (5).

12. The servo valve according to claim 1, characterized in that when the servo valve is deactivated, the low-pressure side (5) is sealed off from the high-pressure side (38, 39) by a guide portion (37) of the valve piston (32, 33, 60).